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(71) Applicant : **Filoform B.V.**
Verlengde Hooggravenseweg 69c
NL-3525 BB Utrecht (NL)

(72) Inventor : **Ipenburg, Willem**
Reigersbek 57
NL-3434 XG Nieuwegein (NL)

(74) Representative : **Smulders, Theodorus A.H.J.,**
Ir. et al
Vereenigde Octrooibureaux
Nieuwe Parklaan 97
NL-2587 BN 's-Gravenhage (NL)

(54) **Package assembly comprising a nozzle with piercing means.**

(57) A package assembly comprising a package, a nozzle part, piercing means and fixing means, the package being in particular intended for receiving liquids and at least partly manufactured from a pierceable foil or another pierceable material, the nozzle part comprising a discharge channel, and the piercing and fixing means being capable of connecting the nozzle part to the package such that the discharge channel, in a discharge position, connects the interior of the package to the surroundings. The fixing means comprise a receiving part capable of receiving the nozzle part in a first position, the piercing means, when the receiving part and the package are fixedly connected, being at a distance from the package, and control means being present between the receiving part and nozzle part for bringing the nozzle part from the first position into the discharge position.

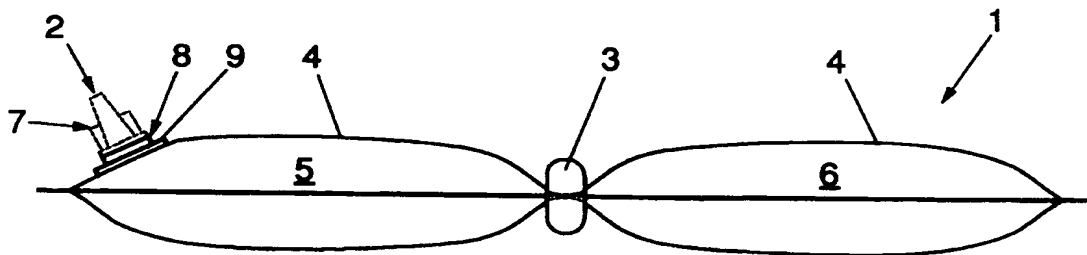
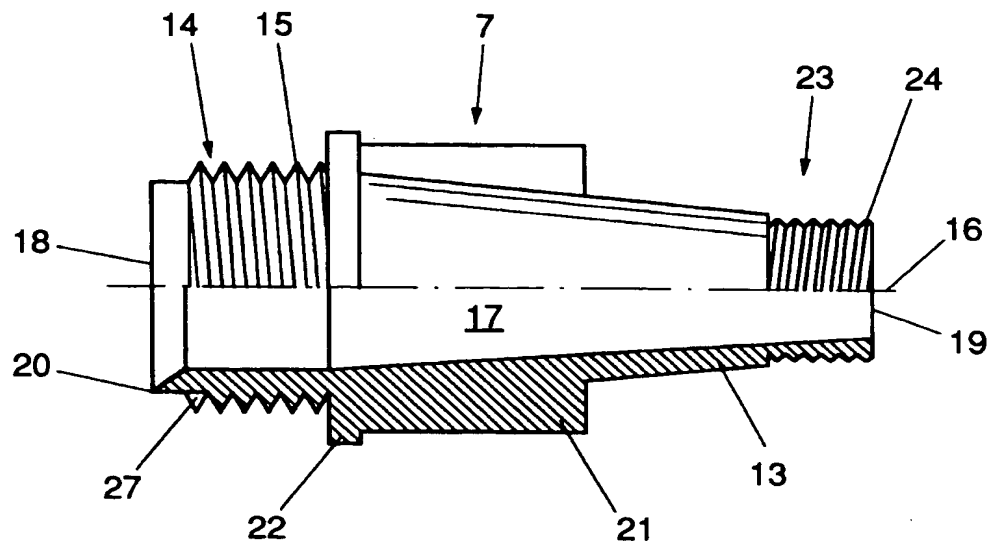


FIG. 1

EP 0 654 419 A1



The invention relates to a package assembly comprising a package, a nozzle part, piercing means and fixing means, the package being in particular intended for receiving liquids and at least partly manufactured from a pierceable foil or another pierceable material, the nozzle part comprising a discharge channel, and the piercing and fixing means being capable of connecting the nozzle part to the package such that the discharge channel, in a discharge position, connects the interior of the package to the surroundings.

A known package assembly for receiving liquids, and in particular for high-viscous liquids, consists of a package, a nozzle part with piercing means and fixing means in the form of a loose adhesive ring. In this known package assembly, the package consists of two pierceable foil strips, sealed at at least one edge after the package has been filled. The nozzle part comprises a discharge channel, a fixing flange and piercing means in the form of a number of cutting lips extending around the end of the discharge channel from the fixing flange. The adhesive ring is a thin, flexible ring having a layer of glue on one side and a central opening of the size of the section of the nozzle part adjacent to the fixing flange. The known package assembly can be handled as follows.

The package is taken in the hand by a user and, if necessary, kneaded thoroughly. Subsequently, the nozzle part is arranged on one of the sides of the package. This involves the adhesive ring being slid over the nozzle part until it abuts against the fixing ring, the adhesive layer facing the package. The nozzle part is then pressed onto the package with the fixing flange, and secured by means of the adhesive ring. While the fixing flange is being pressed onto the package, the cutting lips are pressed through the wall of the package, causing the discharge channel to connect the inside of the package with the surroundings and enabling removal of the liquid from the package.

During use, the known package assembly has the drawback, in particular when liquids are used capable of building up a pressure in the package, such as reactive substances, that already during the arrangement of the nozzle part on the package, a part of the liquid will be able to flow out of the package and end up on the user's clothes or hands. Moreover, a part is the contents will thus be lost.

A further drawback of this known assembly is that during use, the nozzle part with the adhesive ring are to be provided on the package by the user himself. Hence, it is possible that the fixing flange is not fixed on the package in the correct manner, which has an adverse effect on the use of the package assembly. For instance, prior to or during use, the package may have become greasy or dirty by the user's hands or it may be wrinkled, as a result of which the adhesive ring will poorly adhere to the package, or dirt may end up between the fixing ring and the package. This will

cause the fixing ring to seal poorly against the package wall, allowing a part of the contents to flow away between them.

Moreover, it is possible that the nozzle part is provided at an unfavorable location on the package, so that only a part of the contents can be squeezed from the package. Further, the provision of the nozzle part involves the danger that the cutting lips are also pressed through an opposite wall, as a result of which a part of the contents will leave the package on the wrong side when the package is squeezed empty.

The object of the invention is to provide an assembly according to the preamble of the main claim wherein the aforementioned drawbacks have been avoided. To that end, the package assembly according to the invention is characterized in that the fixing means comprise a receiving part capable of receiving the nozzle part in a first position, wherein the piercing means, when the receiving part and the package are fixedly connected, are at a distance from the package, control means being present between the receiving part and the nozzle part for bringing the nozzle part from the first position into the discharge position.

In the assembly according to the invention, the receiving part may have been or may be provided on the package prior to use, as the piercing means are located at a distance from the package if the nozzle part has been received in the first position within the receiving part. Hence, when the nozzle part is in this first position, the package is still entirely closed, and the contents of the package cannot be squeezed out to the surroundings unintentionally and/or prematurely, not even when the contents of the package are mixed through kneading or when pressure is built up therein.

As the nozzle part can be moved, through controlled cooperation with the receiving part, from the first position into a second position, the discharge channel in the second position capable of extending through one wall of the package, the inside of the package can be brought into communication with the surroundings in a simple and reliable manner. The contents of the package can only be squeezed out to the surroundings, at a moment chosen by the user and only via the discharge channel, if the nozzle part has been actively brought into this second position. The controlled cooperation between the nozzle part and the receiving part further prevents the piercing means from unintentionally piercing several walls of the package, the more so as the nozzle part has an at least practically flat, non-cutting bottom side.

As the receiving part can at least partly be secured to the package prior to use, the situation that the adhesion between the receiving part and the package is insufficient, for instance due to a greasy or dirty package, is prevented. This does not involve the danger that, during use, the contents can leave

the package in a manner other than via the discharge channel.

With the package assembly according to the invention, liquids can be squeezed out of the package via the discharge channel only, without involving the danger that the contents leave the package in a different manner, which may for instance cause danger to the user's clothes and health. Moreover, the loss of a part of the contents of the package is prevented, so that the environment is not unnecessarily burdened either.

Hence, even when using for instance a dirtied package with compartments containing different reactive substances, the user can mix these substances together, for instance by kneading the package with dirty or greasy hands, without the functionality of the package assembly being adversely influenced thereby.

When thin, flexible materials, such as foil, are used for the package, it is particularly advantageous when in the assembly according to the invention the receiving part is fixedly connected to the empty package by means of glueing, welding or like connecting techniques. This stiffens the package locally, at the receiving part, so that it can be gripped easily, in particular during the provision of the nozzle part. As the receiving part is already arranged on the empty package, a deterioration of the adhesion thereof to the package, for instance due to the formation of wrinkles in the package or the package or the receiving part having become dirty or greasy, is prevented.

In particular when relatively thick and stiff packages are used in the assembly, it may be preferred, in a further elaboration, that the receiving part is part of the package. This embodiment has the specific advantage that the receiving part is always provided in the correct position, and, moreover, the package can be manufactured in a simple and reliable manner.

The package can be opened through cooperation of the receiving part and the nozzle part. It will often be desired that the nozzle part functions independently as a spout nozzle; for this reason, it is provided, in accordance with a preferred embodiment of the invention, that in the discharge position, the nozzle part is coupled to the receiving part.

A quick and simple opening of the package can be realized if, in accordance with a further preferred embodiment, the nozzle part comprises at least one cutting part which belongs to the piercing means and which is preferably a cutting tooth or a like cutting means extending from the outside of the nozzle part adjacent to the bottom end thereof substantially transversely to the longitudinal axis of the discharge channel. A cutting tooth may be formed by a substantially transversely cut-off end of the thread on the nozzle part or may consist of a separate projection, provided independently of the thread. Because the nozzle part can be moved from the first position into

the discharge position in controlled cooperation with the receiving part, in this embodiment, this cutting part is automatically moved together with the nozzle part in the direction of the package and through it. Due to the fixed connection between the receiving part and the package, the package within the receiving part will be deformed by the lower edge, abutting against the wall of the package, of the nozzle part that rotates within the receiving part. The wall of the package will be slightly wrinkled and/or stretched over the lower edge of the rotating nozzle part, allowing the cutting tooth to contact the package and cut or tear it open. In this manner, an opening is obtained in the package with a minimum of measures, which opening connects the interior of the package to the surroundings via the discharge channel. Because the lower edge of the nozzle part is relatively blunt, the situation that, upon further rotation of the nozzle part, the opposite wall of the package is damaged as well, is prevented in a simple manner.

If the opposite wall of the package is otherwise prevented from being damaged by the nozzle part, for instance through the use of a partly stiff package or the fact that the material in the package keeps the opposite walls at a sufficient distance, the cutting part according to the invention can be formed by a cutting edge extending at least partly around the end of the discharge channel. This embodiment is of a particularly simple construction.

In the assembly according to the invention, the nozzle part is preferably detachable from the receiving part. This has the particularly advantageous effect that the nozzle part can be stored separately from the receiving part, which prevents the nozzle part from being brought into the discharge position unexpectedly and unintentionally. Moreover, this allows the package assembly to be manufactured and stored in a simpler manner, in particular if the receiving part is a ring having a flat bottom side, fixedly connectable to the package and having a contact face for a sealing ring face provided around the discharge channel. As a result, the total thickness of the package is only little influenced by a ring provided thereon and, moreover, when a nozzle part is placed in the receiving part in the discharge position, a good seal is obtained in a simple manner between the nozzle part and the receiving part.

In alternative embodiments of the assembly according to the invention, the nozzle part can be screwed on or in the receiving part or fixed thereon or therein by means of a bayonet fit or a like connection. In these embodiments, at least between the first position and the discharge position, a rotating movement of the nozzle part around its longitudinal axis relative to the receiving part, and hence relative to the package, is obtained. Particularly if the piercing means are at least partly included in the nozzle part, this rotating movement will effect the opening of the

package by means of the piercing means in a very efficient and simple manner.

As a matter of fact, an assembly of at least a receiving part and a nozzle part according to the invention can also be used in a package known per se, instead of the known nozzle part with adhesive ring. The receiving part can then be provided on the package prior to use, for instance through an adhesive layer which may or may not be provided with a support, such as double-sided adhesive tape. Compared with the known nozzle part, this at least yields the advantage that the contents of the package cannot already come out during the fixing operation.

The invention further relates to a method for manufacturing a package assembly. In this method, a receiving part and, optionally, at least one element which divides the package into compartments are fixed on a tubular foil section, and the foil section is filled with one or more reactive components, whereupon the tubular section is sealed at its open ends. As the receiving part is already provided before the package, which may or may not have been divided into compartments, is filled, it is ensured that the receiving part is provided in the proper manner, so that the sealing effect and the position of the receiving part and the nozzle part are ideal for the intended use of the assembly.

The invention moreover relates to a receiving part which is in particular suitable for use in an assembly according to the invention, which receiving part is annular and is provided with a thread having one helix at the most. This receiving part can be manufactured in a particularly simple manner by means of a compression or injection molding technique, because a double die can be used without any other moving parts such as rotation cores.

It is further observed that European patent specification 0 322 980 discloses an assembly of a package, a nozzle part and piercing and securing means, wherein the nozzle part is fixed on the outside of a wall part and comprises a continuous discharge channel. The wall part can be arranged on the package by means of adhesive tape provided on the inside thereof. A comparable wall part is fixed on the opposite wall in an identical manner, with a piercing element provided on the inside of the second wall part in such a manner that it extends through the two walls into the discharge channel. When this known package assembly is used, the nozzle part should also be provided at the moment of use after the contents have been mixed and/or kneaded, because otherwise the contents of the package will be squeezed out of the package during mixing and/or kneading. Moreover, a priorly provided nozzle part hinders a proper mixing or kneading of the contents of the package. This means that in this assembly, too, a proper attachment of the wall parts is not guaranteed. Moreover, this assembly has the drawback that the piercing element always extends

through the two walls of the package. Hence, if the attachment of the wall parts is not optimum, for instance due to the fact that the adhesive tape does not entirely butt around the discharge channel and/or the piercing element, the contents of the package will be able to egress in a manner other than through the discharge channel.

To explain the invention, exemplary embodiments of the assembly will hereinafter be described, with reference to the accompanying drawings. In these drawings:

Fig. 1 shows the assembly according to the invention, in side elevation;

Fig. 2 shows the nozzle part in side elevation, partly in section;

Fig. 3 shows the receiving part in side elevation, partly in section;

Fig. 4 shows an alternative embodiment of the receiving part and the nozzle part in longitudinal section, the nozzle part being partly in the first position and partly in the discharge position; and Fig. 5 shows an alternative embodiment of the receiving part in a sectional view.

The package assembly shown in Fig. 1 consists of a package 1 and a delivery nozzle 2. In the example shown, the package 1, manufactured from foil, is divided by means of a clamping element 3 into two compartments 4, including respectively a liquid 5 and a substance 6, reactive therewith. The delivery nozzle 2 consists of a nozzle part 7 and a receiving part 8. The receiving part 8 is for instance glued or (ultrasonically) welded on the package 1, but may also be fixed thereon by means of, for instance, double-sided adhesive tape.

The receiving part 8 is formed by a flat ring 9, provided with an internal thread 10, a flat bottom side 11, forming the fixing face for fixing on the package 1, and a flat top side 12, forming a sealing face.

The nozzle part 7 is formed by a truncated cone-shaped portion 13 and, connecting thereto and being in line therewith, a cylindrical portion 14, provided with external thread 15 capable of cooperating with the internal thread 10 of the receiving part 8. Extending through the truncated cone-shaped portion 13 and the cylindrical portion 14 is a discharge channel 17, open at the two ends 18 and 19.

Provided around the end 18 of the discharge channel 17, located adjacent to the cylindrical portion 14, is an at least partly circular wrinkle edge 20, raised parallel to the longitudinal axis 16 of the discharge channel 17. The end of the external thread 15, located adjacent to the wrinkle edge 20, has been cut off straight, transversely to the thread direction, whereby a transversely directed cutting tooth 27 is obtained. On the outside, the truncated cone-shaped portion 13 comprises a plurality of radially extending fins 21, easy for a user to grip.

At the transition between the cylindrical portion

14 and the truncated cone-shaped portion 13, adjacent to the end of the external thread 15 remote from the wrinkle edge 20, a sealing flange 22 extends in radial direction, capable of cooperating with the sealing face 12 of the receiving part 8. The truncated cone-shaped portion 13 further comprises a reduced portion 13, having an external thread 24, for the attachment of fittings, not shown in the drawing.

The package assembly can be used as follows.

Prior to use, the clamping element 3 is removed from the package, as a result of which the two compartments 4 are put into communication with one another. This allows the liquid 5 to be mixed with the reactive substance 6, for instance through the careful kneading of the package 1 by the user. Because the nozzle part 7, comprising piercing means, has not yet been received in the receiving part 8, this kneading of the package does not involve the danger that the package is prematurely opened. Moreover, a proper mixture of the two components is not hindered by the presence of a nozzle part 7, which otherwise clearly projects from the package 1. By mixing the two substances 5, 6 carefully, a (chemical) reaction will be started, for instance formation of foam and polymerization. When the two substances have been mixed sufficiently, the material is ready for use.

Preferably, the nozzle part 7 is gripped at the fins 21 and, through controlled cooperation between the internal thread 10 in the receiving part 8 and the external thread 15 on the nozzle part 7, rotated inside the receiving part 8 against the outside of the package 1 (first position). By rotating the nozzle part 7 further, the wrinkle edge 20 may cause the package within the receiving part to wrinkle and/or stretch slightly. Upon further rotation of the nozzle part 7, at least one of these wrinkles will be contacted and cut through by the cutting tooth 27, whereupon, when the rotation of the nozzle part 7 is continued, the package 1 within the receiving part 8 is further cut open. The nozzle part 7 can subsequently be screwed further, until the sealing flange 22 comes into sealing abutment against the sealing face 12 of the receiving part 8. In this manner, the discharge channel 17 is passed through the wall of the package 1 (discharge position), so that the inside of the package 1 comes into open communication with the surroundings via the discharge channel 17. Moreover, at the same time, this prevents the possibility that the contents 5, 6 are squeezed out of the package 1 in a manner other than via the discharge channel 17. As a result, the foam-forming mixture 5, 6 can be spouted in a very selective and controlled manner into for instance a sealing socket or wall bushing for cables and the like, not shown, for instance through manual or mechanical compression of the package.

Because the wrinkle edge 20 is relatively blunt and the nozzle part further has a substantially flat bottom side, and the wall of the package 1 that is op-

posite the receiving part 8 has sufficient flexibility, this wall will be pushed away by the nozzle part 7 fitted in the receiving part 8 without being damaged thereby.

If a relatively thick package is used, the receiving part may form an integral part of the package, for instance when the ring according to Fig. 3 is formed integrally with the package wall, with the central opening of the receiving part being closed by a pierceable membrane.

In the variant of the embodiment of the assembly according to the invention shown in Fig. 4, the nozzle part 107, on the side of the cylindrical portion 114, has a substantially flat end 118. Accommodated in the central opening 125 of the receiving part 108 is a package-facing end edge 120, divided by a plurality of radial cuts 126 into a plurality of sectors, each of which forms a cutting tooth 127 having a cutting face. If the nozzle part 107 is received in the receiving part 108 in the first position, the cutting teeth 127 at the most abut against the wall of the package 1 (the position shown on the left in Fig. 4). When the nozzle part is screwed further in the direction of the package, the cutting teeth 127 are pressed through the package, resulting in an open communication, via the discharge channel 117, between the inside of the package 1 and the surroundings.

The embodiment shown in Fig. 4 has the particular advantage that the nozzle part 107 has no sharp portions, so that the chance of damage to the package 1 or other objects, and of injury to for instance the user is minimized. Moreover, the discharge channel 117 cannot become clogged by a part cut loose from the package, because the package is torn open in sectors below the receiving part 108 in radial direction relative to the longitudinal axis of nozzle part 107.

As the cutting teeth 127 are relatively short, the flat bottom side 118 of the nozzle part 107, when rotated into the receiving part 108, will almost directly be flush with the cutting faces of the cutting teeth 127, preventing in a simple manner the opposite wall of the package from being damaged by the cutting teeth 127.

Fig. 5 shows an alternative embodiment of the receiving part 208, which substantially corresponds to the receiving part 8 shown in Fig. 3, but comprises only one helix 210. This receiving part 208 can be used in the above-described manner and has the advantage that it can be manufactured in a compression or injection molding die having only two die parts, defining a division seam 230 over the center of the helix 210. Because the two ends 210', 210'' of the helix 210 are spaced apart, this receiving part remains removable in the die. In Fig. 5, between the two ends 210', 210'' of the thread 210, the division seam 230 of the die is schematically shown, at the level of the top of the thread 210. As a result, no other moving parts, such as for instance a rotatable thread core, are re-

quired, so that the manufacturing costs for this embodiment of the receiving part 208 are relatively low. Moreover, greater tolerances are allowable.

The invention is not limited to the embodiments shown in the drawing. For instance, the nozzle part may be secured in the receiving part by means of a bayonet fit or a comparable mode of attachment, which yields a particularly simple and reliable attachment. Further, in an embodiment particularly based on the variant of an embodiment shown in Fig. 4, the nozzle part may be attached to the receiving part via a swivelling arm, and inserted therein through swivelling and secured in the discharge position by means of a snap edge or a like connection, enabling a quick and user-friendly attachment. Moreover, the package may be incorporated, in whole or in part, into a tool intended for that purpose, in which case the package can be secured in the tool by means of, for instance, the nozzle part and the receiving part cooperating therewith, after which the package can be squeezed out in a simple manner by means of the tool without involving the chance that a user will pollute his clothes, body or further surroundings with the contents of the package.

To further prevent such a pollution, in the assembly according to the invention, in a further embodiment, not shown in the drawing, the nozzle part is connected to the receiving part by means of a flexible portion, which is preferably a closed wall fittingly connecting to the receiving part on the one hand and to the nozzle part on the other, the arrangement being such that during use, liquid from the package can only be passed to the surroundings via the discharge channel. Liquid which, against expectation, is squeezed out via the cooperating threads instead of via the discharge channel, will then be collected within the closed wall, so that there is an extra barrier against pollution of the surroundings.

The invention further relates to a method for manufacturing an assembly according to the invention, wherein a receiving part and optionally at least one compartment-separating element are fixed on a tubular foil section, and the foil section is filled with one or more reactive components, whereupon the tubular section is sealed at the open ends. Thus, an assuredly closed seal can be obtained in a simple manner between the receiving part and the package, and, moreover, the package can be manufactured, filled and further finished in a simple and inexpensive manner.

The invention further relates to a method for applying a foam-forming agent by means of an assembly according to the invention, wherein at least two components are contacted with each other and mixed in the package, after which the nozzle part is brought into the discharge position in the receiving part. Subsequently, the foam-forming contents of the package are squeezed out to the surroundings via the discharge channel, at least through compression of the

package. As the nozzle part is provided in the receiving part only after the contents of the package have been mixed, the advantages of the package assembly according to the invention over the known package assemblies, during use, are obtained in a simple manner, without losing the advantages thereof, such as a relatively low cost price and a simple use.

Claims

1. A package assembly comprising a package, a nozzle part, piercing means and fixing means, the package being in particular intended for receiving liquids and at least partly manufactured from a pierceable foil or another pierceable material, the nozzle part comprising a discharge channel, and the piercing and fixing means being capable of connecting the nozzle part to the package such that the discharge channel, in a discharge position, connects the interior of the package to the surroundings, characterized in that the fixing means comprise a receiving part (8, 108) capable of receiving the nozzle part (7, 107) in a first position, wherein the piercing means (8, 108), when the receiving part (8, 108) and the package (1) are fixedly connected, are at a distance from the package (1), control means (10, 15) being present between the receiving part (8, 108) and the nozzle part (7, 107) for bringing the nozzle part (7, 107) from the first position into the discharge position.
2. An assembly according to claim 1, characterized in that the receiving part (8, 108) is fixedly connected to the empty package (1) by means of glueing, welding or like connecting techniques.
3. An assembly according to claim 1, characterized in that the receiving part is a part of the package.
4. An assembly according to any one of the preceding claims, characterized in that in the discharge position the nozzle part (7, 107) is coupled to the receiving part (8, 108).
5. An assembly according to any one of the preceding claims, characterized in that the nozzle part (8, 108) comprises at least one cutting part (27, 127) belonging to the piercing means.
6. An assembly according to claim 5, characterized in that the cutting part comprises a cutting tooth or a like cutting means extending from the outside of the nozzle part adjacent to the bottom end thereof substantially transversely to the longitudinal axis of the discharge channel.

7. An assembly according to claim 6, characterized in that the cutting part comprises a cutting edge (20) at least partly extending around the end (18) of the discharge channel (17).
8. An assembly according to any one of the preceding claims, characterized in that the nozzle part (7, 107) is detachable from the receiving part (8, 108).
9. An assembly according to any one of the preceding claims, characterized in that the nozzle part (7, 107) can be screwed on or in the receiving part (8, 108).
10. An assembly according to claims 6 and 9, characterized in that the cutting tooth is formed by a substantially transversely cut-off end of the thread on the nozzle part.
11. An assembly according to claim 10, characterized in that the receiving part (8, 108) is a ring (9) having an internal thread (10) and a flat bottom side (11), fixedly connectable to the package (1), and comprising a contact face (12) for a sealing ring face (22) provided around the discharge channel (17, 117).
12. An assembly according to any one of claims 1-10, characterized in that the nozzle part (7, 107) can be fixed on or in the receiving part (8, 108) by means of a bayonet fit or a like connection.
13. An assembly according to any one of the preceding claims, characterized in that the nozzle part (7, 107) is connected to the receiving part (8, 108) by means of a flexible part.
14. An assembly according to claim 13, characterized in that the flexible part is a closed wall fittingly connecting to the receiving part (8, 108) on the one hand and to the nozzle part (7, 107) on the other, the arrangement being such that during use, liquid from the package can only be passed to the surroundings via the discharge channel (17, 117).
15. An assembly according to any one of the preceding claims, the package being divided into at least two separate compartments and manufactured from at least two foil strips, characterized in that the receiving part (8, 108) is provided on one of the foil strips preferably adjacent to a longitudinal edge thereof.
16. An assembly of at least a receiving part and a nozzle part, evidently intended for use in an assembly according to any one of the preceding

claims.

17. A method for manufacturing a package assembly according to any one of claims 1-15, wherein a receiving part and, optionally, at least one compartment-separating element are fixed on a tubular foil section, and the foil section is filled with one or more reactive components, whereupon the tubular section is sealed at the open ends.
18. A method for applying a foam-forming agent by means of an assembly according to any one of claims 1-15, wherein at least two components are contacted with each other and mixed in the package, after which the nozzle part is brought into the discharge position in the receiving part, after which the foam-forming contents of the package are squeezed out to the surroundings via the discharge channel, at least through compression of the package.
19. A receiving part in particular suitable for use in an assembly according to any one of claims 9-16, characterized in that the receiving part (208) is annular and is provided with a screw thread (210) having one helix at the most.

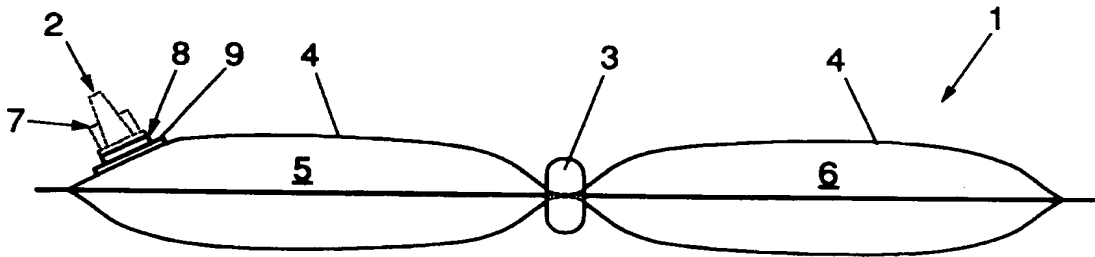


FIG. 1

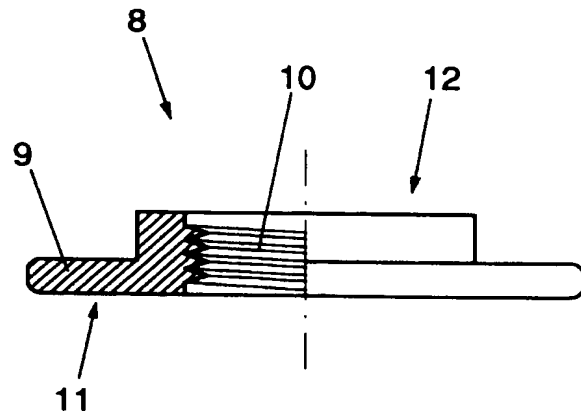


FIG. 3

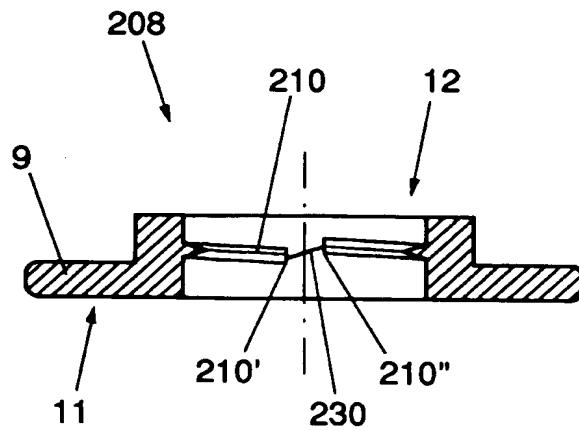


FIG. 5

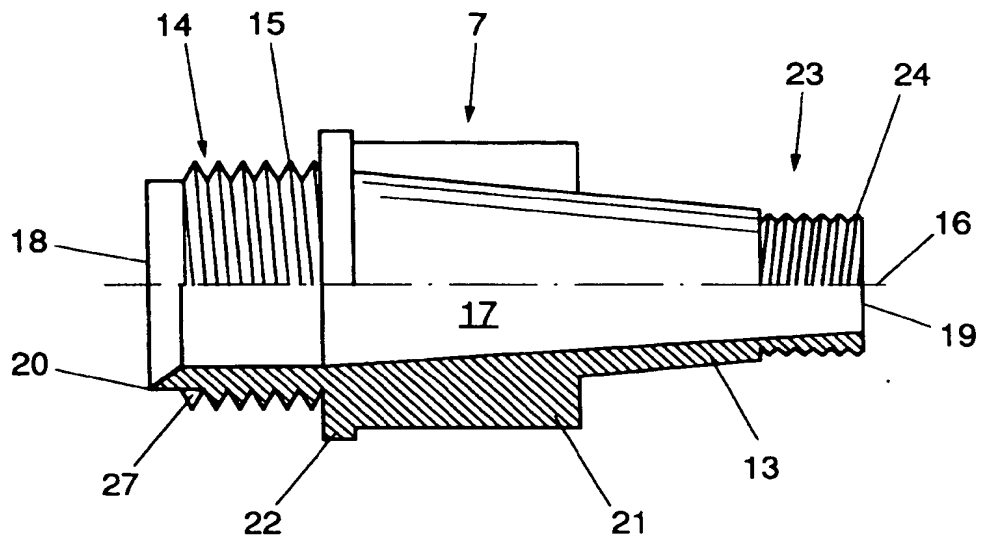


FIG. 2

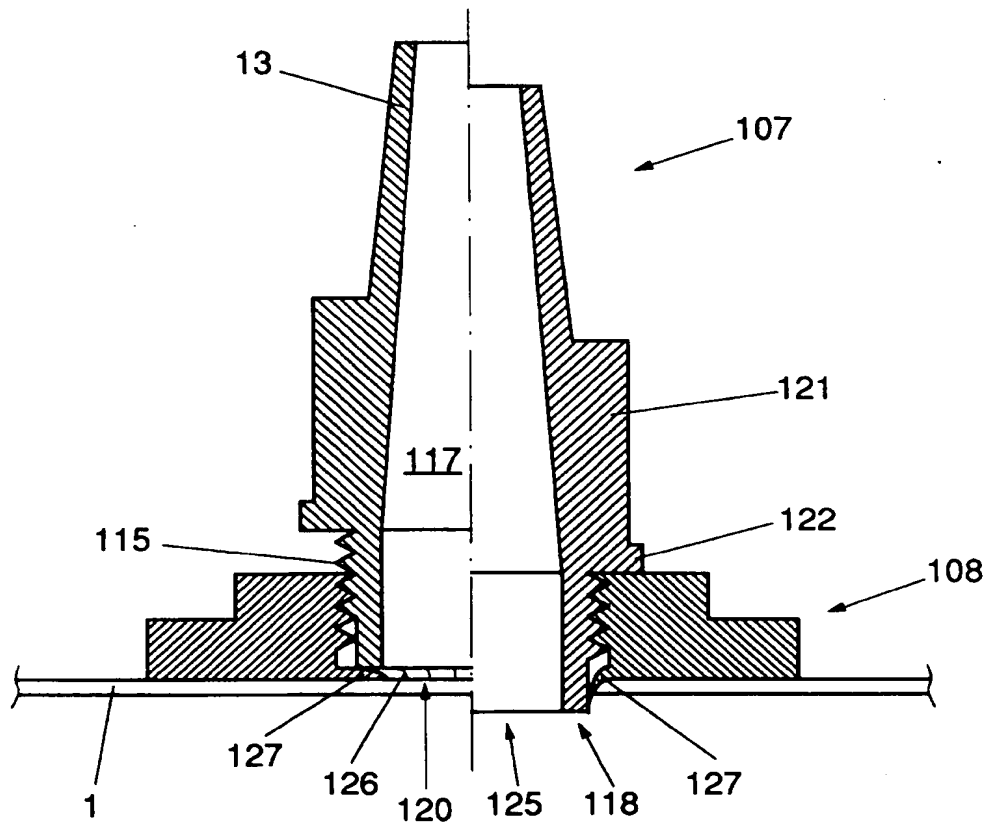


FIG. 4



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 20 2737

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION
X	AU-B-526 182 (PAPALUCA)	1,2,4,5,8,14	B65D75/58
A	* page 4, line 26 - page 6, line 7; figures 1-3 *	6,7,9-11	
X	US-A-2 028 175 (WAITE) * page 1, column 1, line 53 - page 2, column 1, line 11; figures 1-5 *	1,3-5,8,9	
A	EP-A-0 238 133 (BAARS) * column 3, line 46 - column 4, line 24; figures 1-3 *	1,15-18	
			TECHNICAL FIELDS SEARCHED (Int. CL. 6)
			B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 12 January 1995	Examiner Vantomme, M
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : member of the same patent family, corresponding document</p>			

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(71) Applicant : **Filoform B.V.**
Verlengde Hooggravenseweg 69c
NL-3525 BB Utrecht (NL)

(72) Inventor : **Ipenburg, Willem**
Relgersbek 57
NL-3434 XG Nieuwegein (NL)

(74) Representative : **Smulders, Theodorus A.H.J.,**
Ir. et al
Vereenigde Octrooibureaux
Nieuwe Parklaan 97
NL-2587 BN 's-Gravenhage (NL)

(54) **Package assembly comprising a nozzle with piercing means.**

(57) A package assembly comprising a package, a nozzle part, piercing means and fixing means, the package being in particular intended for receiving liquids and at least partly manufactured from a pierceable foil or another pierceable material, the nozzle part comprising a discharge channel, and the piercing and fixing means being capable of connecting the nozzle part to the package such that the discharge channel, in a discharge position, connects the interior of the package to the surroundings. The fixing means comprise a receiving part capable of receiving the nozzle part in a first position, the piercing means, when the receiving part and the package are fixedly connected, being at a distance from the package, and control means being present between the receiving part and nozzle part for bringing the nozzle part from the first position into the discharge position.

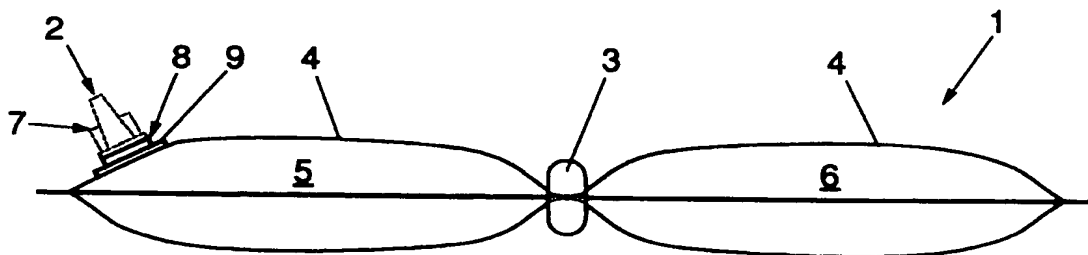
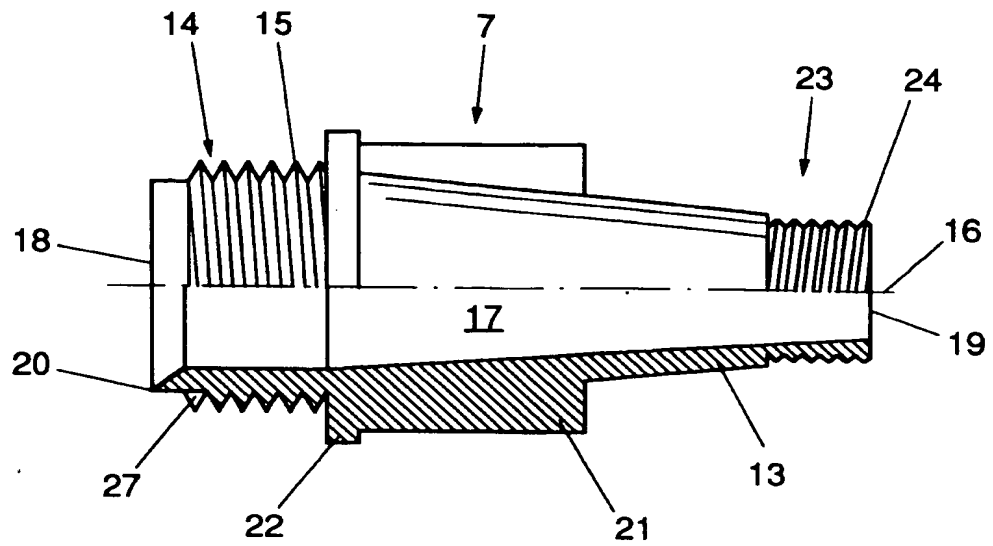


FIG. 1



The invention relates to a package assembly comprising a package, a nozzle part, piercing means and fixing means, the package being in particular intended for receiving liquids and at least partly manufactured from a pierceable foil or another pierceable material, the nozzle part comprising a discharge channel, and the piercing and fixing means being capable of connecting the nozzle part to the package such that the discharge channel, in a discharge position, connects the interior of the package to the surroundings.

A known package assembly for receiving liquids, and in particular for high-viscous liquids, consists of a package, a nozzle part with piercing means and fixing means in the form of a loose adhesive ring. In this known package assembly, the package consists of two pierceable foil strips, sealed at at least one edge after the package has been filled. The nozzle part comprises a discharge channel, a fixing flange and piercing means in the form of a number of cutting lips extending around the end of the discharge channel from the fixing flange. The adhesive ring is a thin, flexible ring having a layer of glue on one side and a central opening of the size of the section of the nozzle part adjacent to the fixing flange. The known package assembly can be handled as follows.

The package is taken in the hand by a user and, if necessary, kneaded thoroughly. Subsequently, the nozzle part is arranged on one of the sides of the package. This involves the adhesive ring being slid over the nozzle part until it abuts against the fixing ring, the adhesive layer facing the package. The nozzle part is then pressed onto the package with the fixing flange, and secured by means of the adhesive ring. While the fixing flange is being pressed onto the package, the cutting lips are pressed through the wall of the package, causing the discharge channel to connect the inside of the package with the surroundings and enabling removal of the liquid from the package.

During use, the known package assembly has the drawback, in particular when liquids are used capable of building up a pressure in the package, such as reactive substances, that already during the arrangement of the nozzle part on the package, a part of the liquid will be able to flow out of the package and end up on the user's clothes or hands. Moreover, a part is the contents will thus be lost.

A further drawback of this known assembly is that during use, the nozzle part with the adhesive ring are to be provided on the package by the user himself. Hence, it is possible that the fixing flange is not fixed on the package in the correct manner, which has an adverse effect on the use of the package assembly. For instance, prior to or during use, the package may have become greasy or dirty by the user's hands or it may be wrinkled, as a result of which the adhesive ring will poorly adhere to the package, or dirt may end up between the fixing ring and the package. This will

cause the fixing ring to seal poorly against the package wall, allowing a part of the contents to flow away between them.

Moreover, it is possible that the nozzle part is provided at an unfavorable location on the package, so that only a part of the contents can be squeezed from the package. Further, the provision of the nozzle part involves the danger that the cutting lips are also pressed through an opposite wall, as a result of which a part of the contents will leave the package on the wrong side when the package is squeezed empty.

The object of the invention is to provide an assembly according to the preamble of the main claim wherein the aforementioned drawbacks have been avoided. To that end, the package assembly according to the invention is characterized in that the fixing means comprise a receiving part capable of receiving the nozzle part in a first position, wherein the piercing means, when the receiving part and the package are fixedly connected, are at a distance from the package, control means being present between the receiving part and the nozzle part for bringing the nozzle part from the first position into the discharge position.

In the assembly according to the invention, the receiving part may have been or may be provided on the package prior to use, as the piercing means are located at a distance from the package if the nozzle part has been received in the first position within the receiving part. Hence, when the nozzle part is in this first position, the package is still entirely closed, and the contents of the package cannot be squeezed out to the surroundings unintentionally and/or prematurely, not even when the contents of the package are mixed through kneading or when pressure is built up therein.

As the nozzle part can be moved, through controlled cooperation with the receiving part, from the first position into a second position, the discharge channel in the second position capable of extending through one wall of the package, the inside of the package can be brought into communication with the surroundings in a simple and reliable manner. The contents of the package can only be squeezed out to the surroundings, at a moment chosen by the user and only via the discharge channel, if the nozzle part has been actively brought into this second position. The controlled cooperation between the nozzle part and the receiving part further prevents the piercing means from unintentionally piercing several walls of the package, the more so as the nozzle part has an at least practically flat, non-cutting bottom side.

As the receiving part can at least partly be secured to the package prior to use, the situation that the adhesion between the receiving part and the package is insufficient, for instance due to a greasy or dirty package, is prevented. This does not involve the danger that, during use, the contents can leave

the package in a manner other than via the discharge channel.

With the package assembly according to the invention, liquids can be squeezed out of the package via the discharge channel only, without involving the danger that the contents leave the package in a different manner, which may for instance cause danger to the user's clothes and health. Moreover, the loss of a part of the contents of the package is prevented, so that the environment is not unnecessarily burdened either.

Hence, even when using for instance a dirtied package with compartments containing different reactive substances, the user can mix these substances together, for instance by kneading the package with dirty or greasy hands, without the functionality of the package assembly being adversely influenced thereby.

When thin, flexible materials, such as foil, are used for the package, it is particularly advantageous when in the assembly according to the invention the receiving part is fixedly connected to the empty package by means of glueing, welding or like connecting techniques. This stiffens the package locally, at the receiving part, so that it can be gripped easily, in particular during the provision of the nozzle part. As the receiving part is already arranged on the empty package, a deterioration of the adhesion thereof to the package, for instance due to the formation of wrinkles in the package or the package or the receiving part having become dirty or greasy, is prevented.

In particular when relatively thick and stiff packages are used in the assembly, it may be preferred, in a further elaboration, that the receiving part is part of the package. This embodiment has the specific advantage that the receiving part is always provided in the correct position, and, moreover, the package can be manufactured in a simple and reliable manner.

The package can be opened through cooperation of the receiving part and the nozzle part. It will often be desired that the nozzle part functions independently as a spout nozzle; for this reason, it is provided, in accordance with a preferred embodiment of the invention, that in the discharge position, the nozzle part is coupled to the receiving part.

A quick and simple opening of the package can be realized if, in accordance with a further preferred embodiment, the nozzle part comprises at least one cutting part which belongs to the piercing means and which is preferably a cutting tooth or a like cutting means extending from the outside of the nozzle part adjacent to the bottom end thereof substantially transversely to the longitudinal axis of the discharge channel. A cutting tooth may be formed by a substantially transversely cut-off end of the thread on the nozzle part or may consist of a separate projection, provided independently of the thread. Because the nozzle part can be moved from the first position into

the discharge position in controlled cooperation with the receiving part, in this embodiment, this cutting part is automatically moved together with the nozzle part in the direction of the package and through it. Due to the fixed connection between the receiving part and the package, the package within the receiving part will be deformed by the lower edge, abutting against the wall of the package, of the nozzle part that rotates within the receiving part. The wall of the package will be slightly wrinkled and/or stretched over the lower edge of the rotating nozzle part, allowing the cutting tooth to contact the package and cut or tear it open. In this manner, an opening is obtained in the package with a minimum of measures, which opening connects the interior of the package to the surroundings via the discharge channel. Because the lower edge of the nozzle part is relatively blunt, the situation that, upon further rotation of the nozzle part, the opposite wall of the package is damaged as well, is prevented in a simple manner.

If the opposite wall of the package is otherwise prevented from being damaged by the nozzle part, for instance through the use of a partly stiff package or the fact that the material in the package keeps the opposite walls at a sufficient distance, the cutting part according to the invention can be formed by a cutting edge extending at least partly around the end of the discharge channel. This embodiment is of a particularly simple construction.

In the assembly according to the invention, the nozzle part is preferably detachable from the receiving part. This has the particularly advantageous effect that the nozzle part can be stored separately from the receiving part, which prevents the nozzle part from being brought into the discharge position unexpectedly and unintentionally. Moreover, this allows the package assembly to be manufactured and stored in a simpler manner, in particular if the receiving part is a ring having a flat bottom side, fixedly connectable to the package and having a contact face for a sealing ring face provided around the discharge channel. As a result, the total thickness of the package is only little influenced by a ring provided thereon and, moreover, when a nozzle part is placed in the receiving part in the discharge position, a good seal is obtained in a simple manner between the nozzle part and the receiving part.

In alternative embodiments of the assembly according to the invention, the nozzle part can be screwed on or in the receiving part or fixed thereon or therein by means of a bayonet fit or a like connection. In these embodiments, at least between the first position and the discharge position, a rotating movement of the nozzle part around its longitudinal axis relative to the receiving part, and hence relative to the package, is obtained. Particularly if the piercing means are at least partly included in the nozzle part, this rotating movement will effect the opening of the

package by means of the piercing means in a very efficient and simple manner.

As a matter of fact, an assembly of at least a receiving part and a nozzle part according to the invention can also be used in a package known per se, instead of the known nozzle part with adhesive ring. The receiving part can then be provided on the package prior to use, for instance through an adhesive layer which may or may not be provided with a support, such as double-sided adhesive tape. Compared with the known nozzle part, this at least yields the advantage that the contents of the package cannot already come out during the fixing operation.

The invention further relates to a method for manufacturing a package assembly. In this method, a receiving part and, optionally, at least one element which divides the package into compartments are fixed on a tubular foil section, and the foil section is filled with one or more reactive components, whereupon the tubular section is sealed at its open ends. As the receiving part is already provided before the package, which may or may not have been divided into compartments, is filled, it is ensured that the receiving part is provided in the proper manner, so that the sealing effect and the position of the receiving part and the nozzle part are ideal for the intended use of the assembly.

The invention moreover relates to a receiving part which is in particular suitable for use in an assembly according to the invention, which receiving part is annular and is provided with a thread having one helix at the most. This receiving part can be manufactured in a particularly simple manner by means of a compression or injection molding technique, because a double die can be used without any other moving parts such as rotation cores.

It is further observed that European patent specification 0 322 980 discloses an assembly of a package, a nozzle part and piercing and securing means, wherein the nozzle part is fixed on the outside of a wall part and comprises a continuous discharge channel. The wall part can be arranged on the package by means of adhesive tape provided on the inside thereof. A comparable wall part is fixed on the opposite wall in an identical manner, with a piercing element provided on the inside of the second wall part in such a manner that it extends through the two walls into the discharge channel. When this known package assembly is used, the nozzle part should also be provided at the moment of use after the contents have been mixed and/or kneaded, because otherwise the contents of the package will be squeezed out of the package during mixing and/or kneading. Moreover, a priorly provided nozzle part hinders a proper mixing or kneading of the contents of the package. This means that in this assembly, too, a proper attachment of the wall parts is not guaranteed. Moreover, this assembly has the drawback that the piercing element always extends

through the two walls of the package. Hence, if the attachment of the wall parts is not optimum, for instance due to the fact that the adhesive tape does not entirely butt around the discharge channel and/or the piercing element, the contents of the package will be able to egress in a manner other than through the discharge channel.

To explain the invention, exemplary embodiments of the assembly will hereinafter be described, with reference to the accompanying drawings. In these drawings:

Fig. 1 shows the assembly according to the invention, in side elevation;

Fig. 2 shows the nozzle part in side elevation, partly in section;

Fig. 3 shows the receiving part in side elevation, partly in section;

Fig. 4 shows an alternative embodiment of the receiving part and the nozzle part in longitudinal section, the nozzle part being partly in the first position and partly in the discharge position; and Fig. 5 shows an alternative embodiment of the receiving part in a sectional view.

The package assembly shown in Fig. 1 consists of a package 1 and a delivery nozzle 2. In the example shown, the package 1, manufactured from foil, is divided by means of a clamping element 3 into two compartments 4, including respectively a liquid 5 and a substance 6, reactive therewith. The delivery nozzle 2 consists of a nozzle part 7 and a receiving part 8. The receiving part 8 is for instance glued or (ultrasonically) welded on the package 1, but may also be fixed thereon by means of, for instance, double-sided adhesive tape.

The receiving part 8 is formed by a flat ring 9, provided with an internal thread 10, a flat bottom side 11, forming the fixing face for fixing on the package 1, and a flat top side 12, forming a sealing face.

The nozzle part 7 is formed by a truncated cone-shaped portion 13 and, connecting thereto and being in line therewith, a cylindrical portion 14, provided with external thread 15 capable of cooperating with the internal thread 10 of the receiving part 8. Extending through the truncated cone-shaped portion 13 and the cylindrical portion 14 is a discharge channel 17, open at the two ends 18 and 19.

Provided around the end 18 of the discharge channel 17, located adjacent to the cylindrical portion 14, is an at least partly circular wrinkle edge 20, raised parallel to the longitudinal axis 16 of the discharge channel 17. The end of the external thread 15, located adjacent to the wrinkle edge 20, has been cut off straight, transversely to the thread direction, whereby a transversely directed cutting tooth 27 is obtained. On the outside, the truncated cone-shaped portion 13 comprises a plurality of radially extending fins 21, easy for a user to grip.

At the transition between the cylindrical portion

14 and the truncated cone-shaped portion 13, adjacent to the end of the external thread 15 remote from the wrinkle edge 20, a sealing flange 22 extends in radial direction, capable of cooperating with the sealing face 12 of the receiving part 8. The truncated cone-shaped portion 13 further comprises a reduced portion 13, having an external thread 24, for the attachment of fittings, not shown in the drawing.

The package assembly can be used as follows.

Prior to use, the clamping element 3 is removed from the package, as a result of which the two compartments 4 are put into communication with one another. This allows the liquid 5 to be mixed with the reactive substance 6, for instance through the careful kneading of the package 1 by the user. Because the nozzle part 7, comprising piercing means, has not yet been received in the receiving part 8, this kneading of the package does not involve the danger that the package is prematurely opened. Moreover, a proper mixture of the two components is not hindered by the presence of a nozzle part 7, which otherwise clearly projects from the package 1. By mixing the two substances 5, 6 carefully, a (chemical) reaction will be started, for instance formation of foam and polymerization. When the two substances have been mixed sufficiently, the material is ready for use.

Preferably, the nozzle part 7 is gripped at the fins 21 and, through controlled cooperation between the internal thread 10 in the receiving part 8 and the external thread 15 on the nozzle part 7, rotated inside the receiving part 8 against the outside of the package 1 (first position). By rotating the nozzle part 7 further, the wrinkle edge 20 may cause the package within the receiving part to wrinkle and/or stretch slightly. Upon further rotation of the nozzle part 7, at least one of these wrinkles will be contacted and cut through by the cutting tooth 27, whereupon, when the rotation of the nozzle part 7 is continued, the package 1 within the receiving part 8 is further cut open. The nozzle part 7 can subsequently be screwed further, until the sealing flange 22 comes into sealing abutment against the sealing face 12 of the receiving part 8. In this manner, the discharge channel 17 is passed through the wall of the package 1 (discharge position), so that the inside of the package 1 comes into open communication with the surroundings via the discharge channel 17. Moreover, at the same time, this prevents the possibility that the contents 5, 6 are squeezed out of the package 1 in a manner other than via the discharge channel 17. As a result, the foam-forming mixture 5, 6 can be spouted in a very selective and controlled manner into for instance a sealing socket or wall bushing for cables and the like, not shown, for instance through manual or mechanical compression of the package.

Because the wrinkle edge 20 is relatively blunt and the nozzle part further has a substantially flat bottom side, and the wall of the package 1 that is op-

posite the receiving part 8 has sufficient flexibility, this wall will be pushed away by the nozzle part 7 fitted in the receiving part 8 without being damaged thereby.

If a relatively thick package is used, the receiving part may form an integral part of the package, for instance when the ring according to Fig. 3 is formed integrally with the package wall, with the central opening of the receiving part being closed by a pierceable membrane.

In the variant of the embodiment of the assembly according to the invention shown in Fig. 4, the nozzle part 107, on the side of the cylindrical portion 114, has a substantially flat end 118. Accommodated in the central opening 125 of the receiving part 108 is a package-facing end edge 120, divided by a plurality of radial cuts 126 into a plurality of sectors, each of which forms a cutting tooth 127 having a cutting face. If the nozzle part 107 is received in the receiving part 108 in the first position, the cutting teeth 127 at the most abut against the wall of the package 1 (the position shown on the left in Fig. 4). When the nozzle part is screwed further in the direction of the package, the cutting teeth 127 are pressed through the package, resulting in an open communication, via the discharge channel 117, between the inside of the package 1 and the surroundings.

The embodiment shown in Fig. 4 has the particular advantage that the nozzle part 107 has no sharp portions, so that the chance of damage to the package 1 or other objects, and of injury to for instance the user is minimized. Moreover, the discharge channel 117 cannot become clogged by a part cut loose from the package, because the package is torn open in sectors below the receiving part 108 in radial direction relative to the longitudinal axis of nozzle part 107.

As the cutting teeth 127 are relatively short, the flat bottom side 118 of the nozzle part 107, when rotated into the receiving part 108, will almost directly be flush with the cutting faces of the cutting teeth 127, preventing in a simple manner the opposite wall of the package from being damaged by the cutting teeth 127.

Fig. 5 shows an alternative embodiment of the receiving part 208, which substantially corresponds to the receiving part 8 shown in Fig. 3, but comprises only one helix 210. This receiving part 208 can be used in the above-described manner and has the advantage that it can be manufactured in a compression or injection molding die having only two die parts, defining a division seam 230 over the center of the helix 210. Because the two ends 210', 210'' of the helix 210 are spaced apart, this receiving part remains removable in the die. In Fig. 5, between the two ends 210', 210'' of the thread 210, the division seam 230 of the die is schematically shown, at the level of the top of the thread 210. As a result, no other moving parts, such as for instance a rotatable thread core, are re-

quired, so that the manufacturing costs for this embodiment of the receiving part 208 are relatively low. Moreover, greater tolerances are allowable.

The invention is not limited to the embodiments shown in the drawing. For instance, the nozzle part may be secured in the receiving part by means of a bayonet fit or a comparable mode of attachment, which yields a particularly simple and reliable attachment. Further, in an embodiment particularly based on the variant of an embodiment shown in Fig. 4, the nozzle part may be attached to the receiving part via a swivelling arm, and inserted therein through swivelling and secured in the discharge position by means of a snap edge or a like connection, enabling a quick and user-friendly attachment. Moreover, the package may be incorporated, in whole or in part, into a tool intended for that purpose, in which case the package can be secured in the tool by means of, for instance, the nozzle part and the receiving part cooperating therewith, after which the package can be squeezed out in a simple manner by means of the tool without involving the chance that a user will pollute his clothes, body or further surroundings with the contents of the package.

To further prevent such a pollution, in the assembly according to the invention, in a further embodiment, not shown in the drawing, the nozzle part is connected to the receiving part by means of a flexible portion, which is preferably a closed wall fittingly connecting to the receiving part on the one hand and to the nozzle part on the other, the arrangement being such that during use, liquid from the package can only be passed to the surroundings via the discharge channel. Liquid which, against expectation, is squeezed out via the cooperating threads instead of via the discharge channel, will then be collected within the closed wall, so that there is an extra barrier against pollution of the surroundings.

The invention further relates to a method for manufacturing an assembly according to the invention, wherein a receiving part and optionally at least one compartment-separating element are fixed on a tubular foil section, and the foil section is filled with one or more reactive components, whereupon the tubular section is sealed at the open ends. Thus, an assuredly closed seal can be obtained in a simple manner between the receiving part and the package, and, moreover, the package can be manufactured, filled and further finished in a simple and inexpensive manner.

The invention further relates to a method for applying a foam-forming agent by means of an assembly according to the invention, wherein at least two components are contacted with each other and mixed in the package, after which the nozzle part is brought into the discharge position in the receiving part. Subsequently, the foam-forming contents of the package are squeezed out to the surroundings via the discharge channel, at least through compression of the

package. As the nozzle part is provided in the receiving part only after the contents of the package have been mixed, the advantages of the package assembly according to the invention over the known package assemblies, during use, are obtained in a simple manner, without losing the advantages thereof, such as a relatively low cost price and a simple use.

Claims

1. A package assembly comprising a package, a nozzle part, piercing means and fixing means, the package being in particular intended for receiving liquids and at least partly manufactured from a pierceable foil or another pierceable material, the nozzle part comprising a discharge channel, and the piercing and fixing means being capable of connecting the nozzle part to the package such that the discharge channel, in a discharge position, connects the interior of the package to the surroundings, characterized in that the fixing means comprise a receiving part (8, 108) capable of receiving the nozzle part (7, 107) in a first position, wherein the piercing means (8, 108), when the receiving part (8, 108) and the package (1) are fixedly connected, are at a distance from the package (1), control means (10, 15) being present between the receiving part (8, 108) and the nozzle part (7, 107) for bringing the nozzle part (7, 107) from the first position into the discharge position.
2. An assembly according to claim 1, characterized in that the receiving part (8, 108) is fixedly connected to the empty package (1) by means of glueing, welding or like connecting techniques.
3. An assembly according to claim 1, characterized in that the receiving part is a part of the package.
4. An assembly according to any one of the preceding claims, characterized in that in the discharge position the nozzle part (7, 107) is coupled to the receiving part (8, 108).
5. An assembly according to any one of the preceding claims, characterized in that the nozzle part (8, 108) comprises at least one cutting part (27, 127) belonging to the piercing means.
6. An assembly according to claim 5, characterized in that the cutting part comprises a cutting tooth or a like cutting means extending from the outside of the nozzle part adjacent to the bottom end thereof substantially transversely to the longitudinal axis of the discharge channel.

7. An assembly according to claim 6, characterized in that the cutting part comprises a cutting edge (20) at least partly extending around the end (18) of the discharge channel (17).
8. An assembly according to any one of the preceding claims, characterized in that the nozzle part (7, 107) is detachable from the receiving part (8, 108).
9. An assembly according to any one of the preceding claims, characterized in that the nozzle part (7, 107) can be screwed on or in the receiving part (8, 108).
10. An assembly according to claims 6 and 9, characterized in that the cutting tooth is formed by a substantially transversely cut-off end of the thread on the nozzle part.
11. An assembly according to claim 10, characterized in that the receiving part (8, 108) is a ring (9) having an internal thread (10) and a flat bottom side (11), fixedly connectable to the package (1), and comprising a contact face (12) for a sealing ring face (22) provided around the discharge channel (17, 117).
12. An assembly according to any one of claims 1-10, characterized in that the nozzle part (7, 107) can be fixed on or in the receiving part (8, 108) by means of a bayonet fit or a like connection.
13. An assembly according to any one of the preceding claims, characterized in that the nozzle part (7, 107) is connected to the receiving part (8, 108) by means of a flexible part.
14. An assembly according to claim 13, characterized in that the flexible part is a closed wall fittingly connecting to the receiving part (8, 108) on the one hand and to the nozzle part (7, 107) on the other, the arrangement being such that during use, liquid from the package can only be passed to the surroundings via the discharge channel (17, 117).
15. An assembly according to any one of the preceding claims, the package being divided into at least two separate compartments and manufactured from at least two foil strips, characterized in that the receiving part (8, 108) is provided on one of the foil strips preferably adjacent to a longitudinal edge thereof.
16. An assembly of at least a receiving part and a nozzle part, evidently intended for use in an assembly according to any one of the preceding

claims.

17. A method for manufacturing a package assembly according to any one of claims 1-15, wherein a receiving part and, optionally, at least one compartment-separating element are fixed on a tubular foil section, and the foil section is filled with one or more reactive components, whereupon the tubular section is sealed at the open ends.
18. A method for applying a foam-forming agent by means of an assembly according to any one of claims 1-15, wherein at least two components are contacted with each other and mixed in the package, after which the nozzle part is brought into the discharge position in the receiving part, after which the foam-forming contents of the package are squeezed out to the surroundings via the discharge channel, at least through compression of the package.
19. A receiving part in particular suitable for use in an assembly according to any one of claims 9-16, characterized in that the receiving part (208) is annular and is provided with a screw thread (210) having one helix at the most.

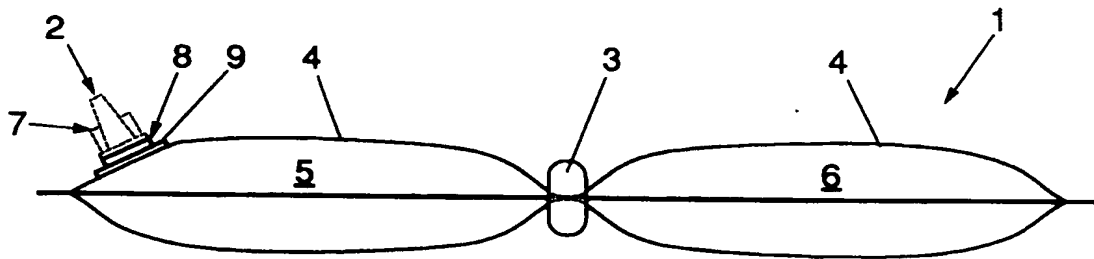


FIG. 1

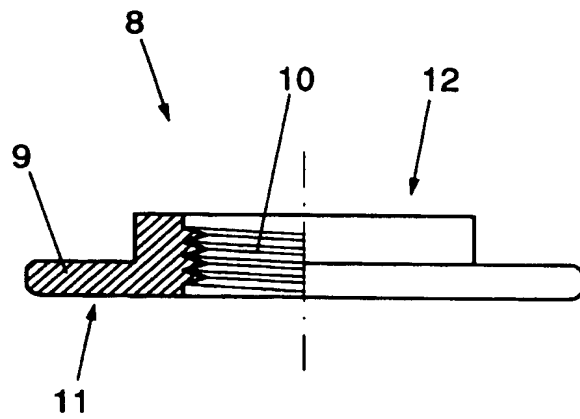


FIG. 3

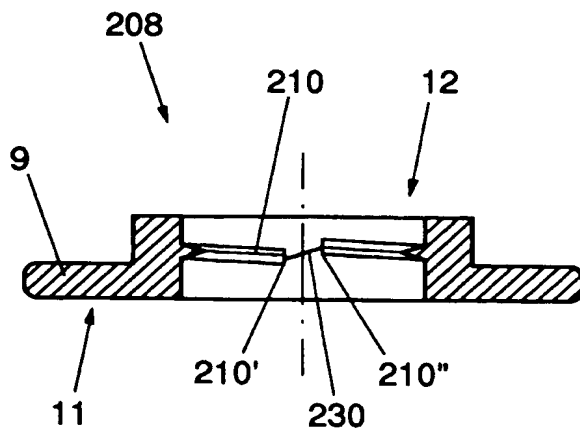


FIG. 5

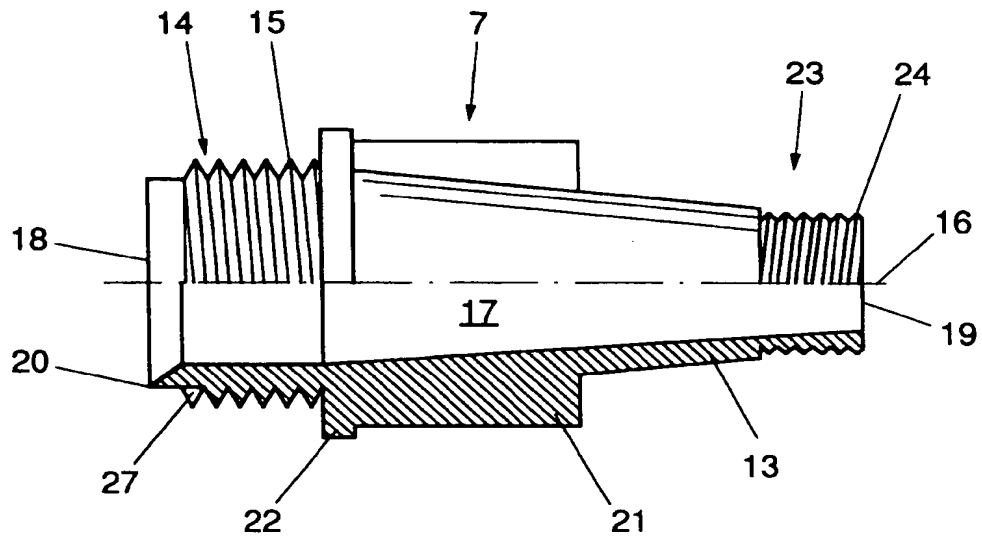


FIG. 2

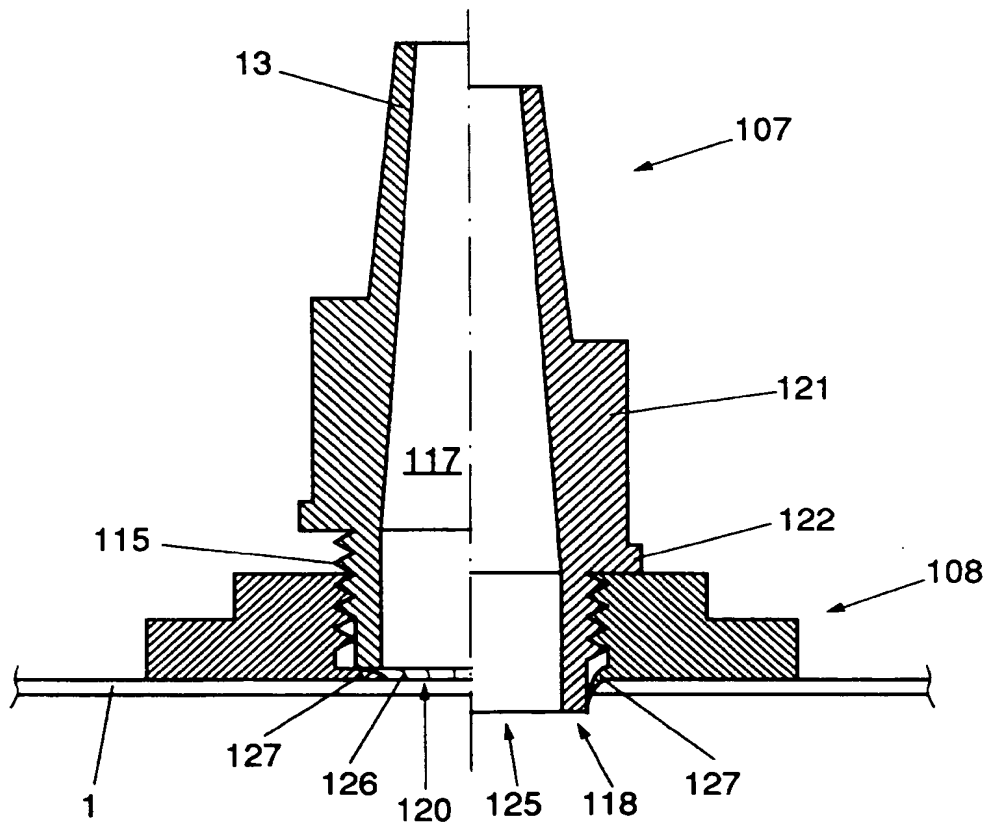


FIG. 4



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 20 2737

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION
X	AU-B-526 182 (PAPALUCA)	1,2,4,5,8,14	B65D75/58
A	* page 4, line 26 - page 6, line 7; figures 1-3 *	6,7,9-11	
X	US-A-2 028 175 (WAITE)	1,3-5,8,9	
A	EP-A-0 238 133 (BAARS) * column 3, line 46 - column 4, line 24; figures 1-3 *	1,15-18	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65D
Place of search		Date of completion of the search	Examiner
THE HAGUE		12 January 1995	Vantomme, M
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